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LISTS OF SPECIES

Fishes of the Du Chaillu Massif, Niari Depression, and Mayombe Massif (Republic of Congo, west-central Africa): A list of species collected in tributaries of the upper Ogowe and middle and upper Kouilou-Niari River basins

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ABSTRACT: A list of fishes collected in rivers of the Du Chaillu Massif, Niari Depression, and Mayombe Massif in the Republic of Congo is provided. Few previous collections have been made and the region is poorly known ichthyologically, however several large mining projects are under development while logging and artisanal gold mining is already underway. One hundred and two species distributed in 22 families are reported, and 11 of these represent putatively new species. The high number of undescribed species recorded in the present study serves to highlight the importance of efforts to fully document the region's ichthyofauna prior to the realization of major infrastructure projects that will undoubtedly impact aquatic habitats.

INTRODUCTION

The study regions on the Du Chaillu Massif, Niari Depression and Mayombe Massif are situated in the southwest of the Republic of Congo from the main channel of the Kouilou-Niari River to the Gabonese border (Figure 1). The relief of the Du Chaillu Massif consists of a metamorphic formation incised by steep-sloped hills and high mountainous regions. Most of the massif is covered in dense forest with savanna formations interspersed, although these are mainly restricted to the eastern parts. The Niari depression is a flat savannah area on a calcareous substrate, while the Mayombe Massif is mountainous with numerous deeply incised valleys covered with dense forest on a metamorphic substrate (Vicat and Gioan 1989).

The main rivers draining the area are the Ogowe and the Kouilou-Niari. Seventeen stations are reported on, and include two sites on the Mayombe Massif (Table 1, sites 1-2). In the Niari Depression the main channel of the middle Kouilou-Niari and two of its smaller tributaries were sampled (Table 1, sites 3-6). The upper Louessé River, which itself is one of the major right bank tributaries of the Kouilou-Niari River, was sampled in the main channel and tributaries (Table 1, sites 7-12), as were headwater tributaries of the Ogowe River (Table 1, sites 13-17). Several major mining projects are currently under development in the region, and ongoing logging and gold prospecting are contributing to a steady degradation of the environment (Figure 2). Data on the fish fauna of the whole country is fragmented (Stiassny *et al*. 2007), and the study region had until recently never been explored ichthyologically. For the present study fishes were collected during surveys undertaken as part of social and environmental impact assessments mandated prior to the implementation of major iron mining projects and associated road and rail development. Here we report on the first ichthyological collections from the region.

MATERIALS AND METHODS

The list of species provided is based on collections made during the rainy seasons of 2010 and 2011. Headwater streams of the Ogowe River and the Kouilou-Niari main channel and adjacent tributaries were sampled between November and December 2010 and again in December 2011. For the upper Louesse River localities, fishes were collected later in the rainy season between March and April 2012. Sampling was not conducted continuously along any river, and localities were surveyed based on accessibility or for specific assessment purposes (Figure 1, Table 1). Fishes were collected and euthanized prior to preservation in accordance with recommended guidelines for the use of fishes in research (AFS/AIFRB/ASIH, 2003). All materials are housed in the Ichthyology Department of the American Museum of Natural History (AMNH), New York, and associated data are accessible at http://entheros.amnh.org/db/emuwebamnh/

Notes on Collection Sites

Site 1 (Sounda, Figure 3A) the Kouilou-Niari flows through a narrow gorge on the Mayombe Massif at the site of the proposed Sounda dam, the river ranges in width from 50 m at the dam site to 300 m at the exit of the gorge. Riverbanks are steep and the substrate rocky with rapid current. Site 2 (Passi Passi Creek, Figure 3B) a small savannah river traversing the eastern foothills of the Mayombe Massif. At the collection site its width is about 3 m, flowing over gravel and mud. Site 3 (near Pont-du-Niari, Figure 3C) the Kouilou-Niari has a width of over 100 m and flows with medium current through savannah, with intact gallery forest lining the banks. Site 4 (Loudima, Figure 3D) at the bridge of Loudima the Kouilou-Niari is about 200

m wide, flowing with a strong current and high turbidity due to erosion of clay banks. Surrounding vegetation is savannah, and much of the gallery forest is degraded. Site 5 (Lekoumou River, Figure 3E) a small tributary of the Kouilou-Niari with its source in the Du Chaillu Massif. In the section surveyed, the river has an average width of 20 m with steep undisturbed, forested banks. Water velocity is medium, with high sediment load and shoreline sediments predominately of silt and sand. Site 6 (Gnimi River, Figure 3F) a small tributary of about 3 m in width and less than 1 m deep at the sample site. The river flows through swamp forest degraded by slash and burn agriculture. Site 7 (Louesse, Figure 3G) the upper Louesse River in the region of Mayoko is 60 meters wide with a depth intermittently exceeding 6 m, it is joined by a shallow creek where water is diverted to Mayoko village. The banks are flooded and colonized by *Raphia*. Site 8 (Lipia Creek, Figure 3H) flows alongside the village of Mayoko. The upstream portion of the creek is maximally 2 m, where it flows through flooded forest. Water is black with moderate flow over mud substrate with much accumulated plant debris. Site 9 (Leala River, Figure 4A) a large left bank tributary of the Louesse River, north of Mayoko. At the sampling site the river narrows to 6 m width with a maximum depth of 2 m. Site 10 (Mayoko Creek 1, Figure 4B) this unnamed creek is a tributary of the Mandoro (itself a large left bank tributary of the Louesse River) running alongside the Mayoko Iron Ore deposit. At the sampling site the creek is 1-2 m wide and shallow. Gold panning sites are observed all along the creek resulting in a highly disturbed reach.

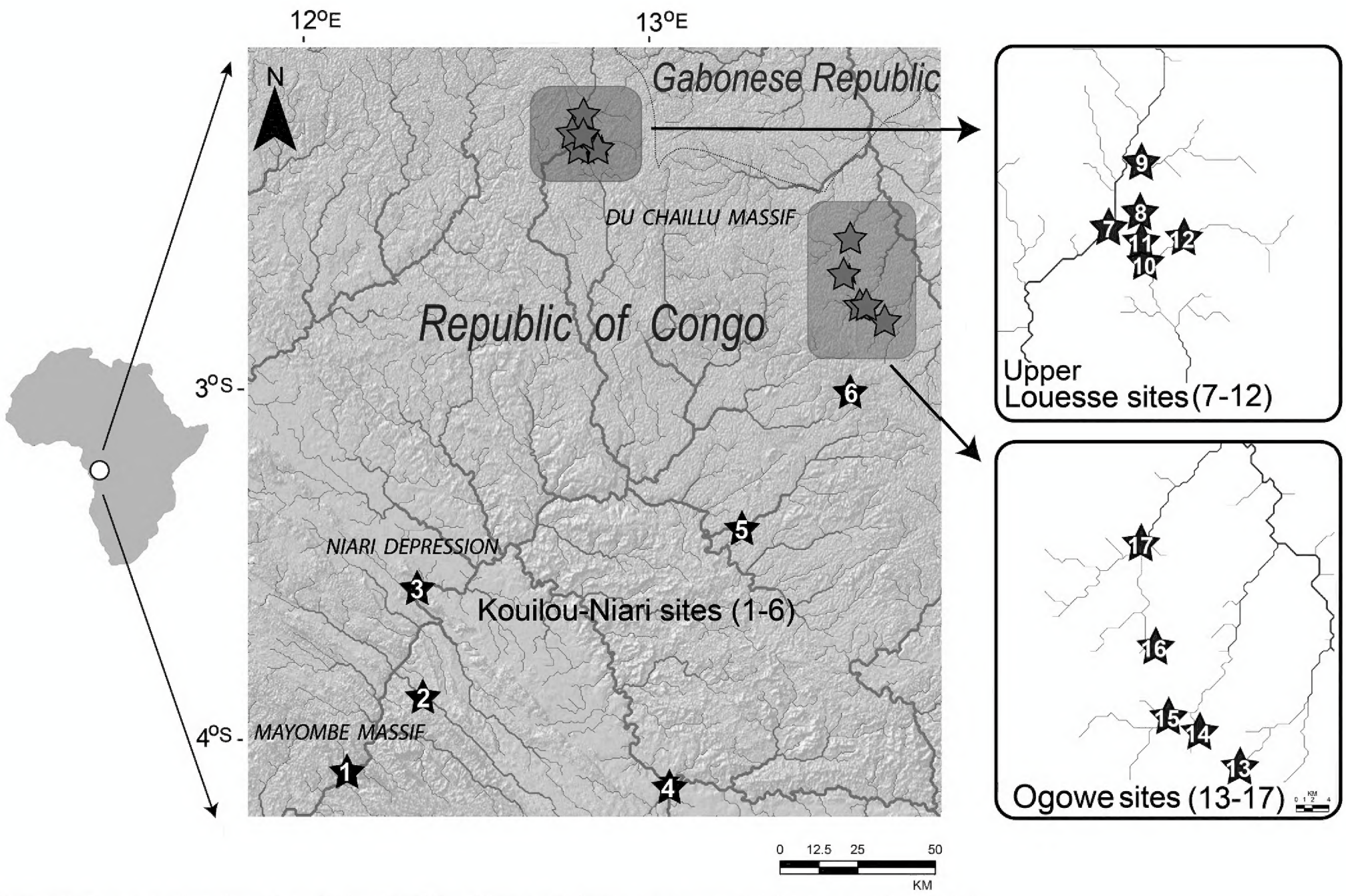

FIGURE 1. Location of study regions in the Republic of Congo, with upper Louesse and Ogowe sites inset (rhs).

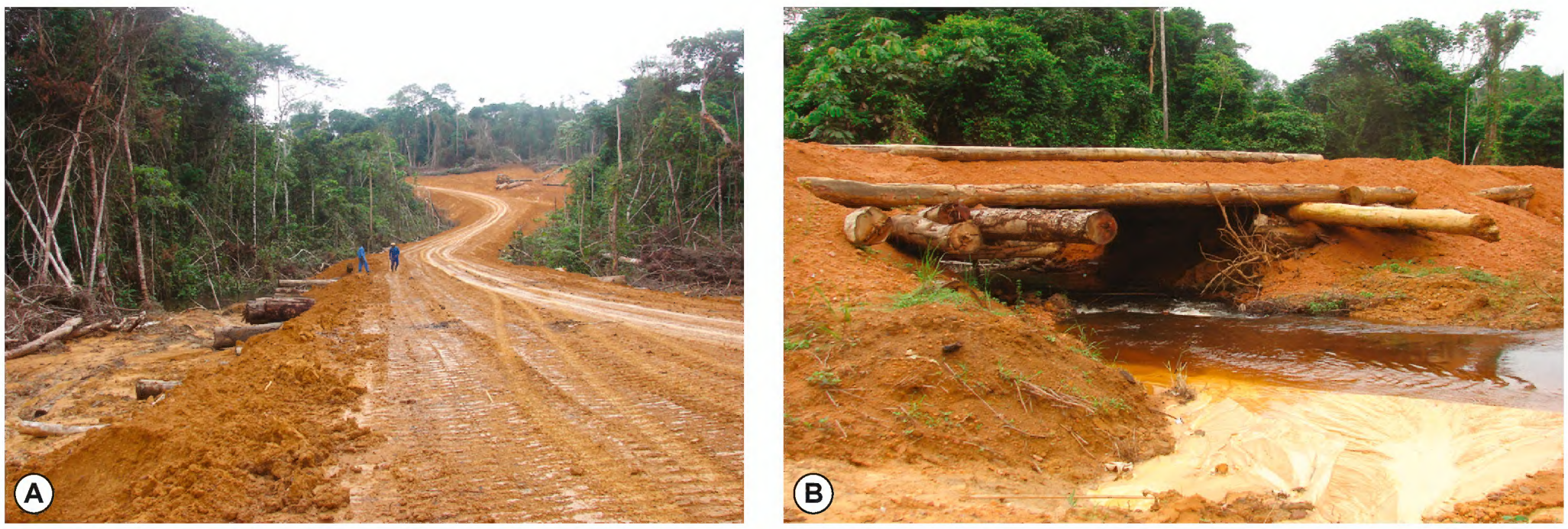

FIGURE 2. Habitat degradation, A) forest clearance for logging road; B) bridge construction for logging road resulting in bank erosion and sedimentation.

Site 11 (Mayoko Creek 2, Figure 4C) the same creek was sampled upstream in a region with minimal disturbance to the forest cover and less gold panning. Site 12 (Mandoro River, Figure 4D) the main channel of the Mandoro River was sampled upstream of the Mayoko Iron Ore deposits in a remote region distant from human habitation. The river is 15 m wide at the sampling site, and flows through dense canopy forest. Site 13 (Lefou River, Figure 4E) is a black water tributary of the Ogowe near the city of Zanaga. It flows entirely through dense forest. At the sampling site its width is about 1.5 m with a few swampy sections. Site 14 (Leweme Creek, Figure 4F) is between 1 to 2 m wide, but in places expands to over 6 m forming large pools. The creek flows rapidly through dense forest with a muddy substrate upstream, but downstream the outcropping bedrock causes the exposure of large blocks of rock. Site 15 (Dzoussounou Creek, Figure 4G) is situated in the main area of iron ore exploration and logging. The creek is about 3 m wide and shallow, in most places not exceeding 0.5 m deep. At the surveyed sites water flow was rapid over gravel and sand. Site 16 (Lebayi Creek, Figure 4H) a small black water stream originating on Mount Lebayi and flowing through dense forest in a succession of falls under a closed canopy. Site 17 (Djoulou River, Figure 5A) flows under forest canopy and includes flood zones. Width is about 15 m and depth of more than 2 m in places, with medium flow over mud and sand.

Fish sampling

Standard fishing techniques were employed (Lang and Baldwin, 1996), and depending on habitat and conditions, included the deployment of monofilament gill nets, electrofishing (Figure 5B), dip, cast, and scoop nets (Figure

FIGURE 3. Sampling sites: A) Kouilou Niari at Sounda; B) Passi-Passi Creek; C) Kouilou Niari near Pont-du- Niari; D) Kouilou Niari at Loudima bridge; E) Lekoumou River; F) Gnimi River; G) Louesse River near Mayoko; H) Lipia Creek.

TABLE 1. Coordinates and site data.

SITE	LOCALITY	COORDINATES	BASIN	SUBSTRATE	COVER
1	Sounda	04°04'48.54"S, 12°08'18.38" E	Kouilou-Niari	Rocks, gravel and sand	Gallery Forest, Steep incline
2	Passi-Passi Creek	03°51'58.39" S, 12°20'47.22" E	Kouilou-Niari	Gravel and mud	Savannah, fringing shrubs and grasses
3	Pont du Niari	03°33'22.68" S, 12°20'32.57" E	Kouilou-Niari	Gravel, mud and sand	Savannah, fringing forest
4	Loudima	04°06'1.44" S, 13°03'38.16" E	Kouilou-Niari	Clay and gravel	Savannah, fringing shrubs and grasses
5	Lekoumou River	03°22'49.30" S, 13°15'55.01"E	Kouilou-Niari	Silt and sand	Dense Forest
6	Gnimi River	02°59'41.06" S, 13°34'43.22" E	Kouilou-Niari	Sand and silt	Degraded swamp forest
7	Louesse, nr Mayoko	02°17'28.02" S, 12°47'36.48" E	Louesse (Kouilou-Niari)	Mud and sand	Degraded swamp forest, *Rhaphia*, emergent grasses
8	Lipia Creek	02°16'58.02" S, 12°49'10.62" E	Louesse (Kouilou-Niari)	Mud and plant debris	Flooded forest
9	Leala River	02°13'16.44" S, 12°49'6.48" E	Louesse (Kouilou-Niari)	Sand and gravel	Swamp forest, fringing grasses
10	Mayoko Creek 1	02°19'22.44" S, 12°49'35.28" E	Louesse (Kouilou-Niari)	Sand and gravel	Closed canopy, creek degraded by gold-panning
11	Mayoko Creek 2	02°18'0.78" S, 12°49'23.40" E	Louesse (Kouilou-Niari)	Rocks, sand and gravel	Closed canopy, dense forest
12	Mandoro River	02°17'59.16" S, 12°51'59.10E	Louesse (Kouilou-Niari)	Rocks and sand	Closed canopy, dense forest
13	Lefou River	02°48'2.45" S, 13°40'44.98" E	Ogowe	Mud, sand and clay	Dense forest
14	Leweme Creek	02°45'55.62" S, 13°37'54.12" E	Ogowe	Large boulders interspersed with sand and mud	Dense forest
15	Dzoussounou Creek	02°45'7.68" S, 13°36'25.68" E	Ogowe	Gravel and sand	Degraded forest, iron ore exploration and logging
16	Lebayi Creek	02°39'52.32" S, 13°34'46.62" E	Ogowe	Rocks, gravel and sand	Dense Forest
17	Djoulou River	02°33'31.79" S, 13°34'29.96" E	Ogowe	Mud and sand	Dense Forest, fringing swamps

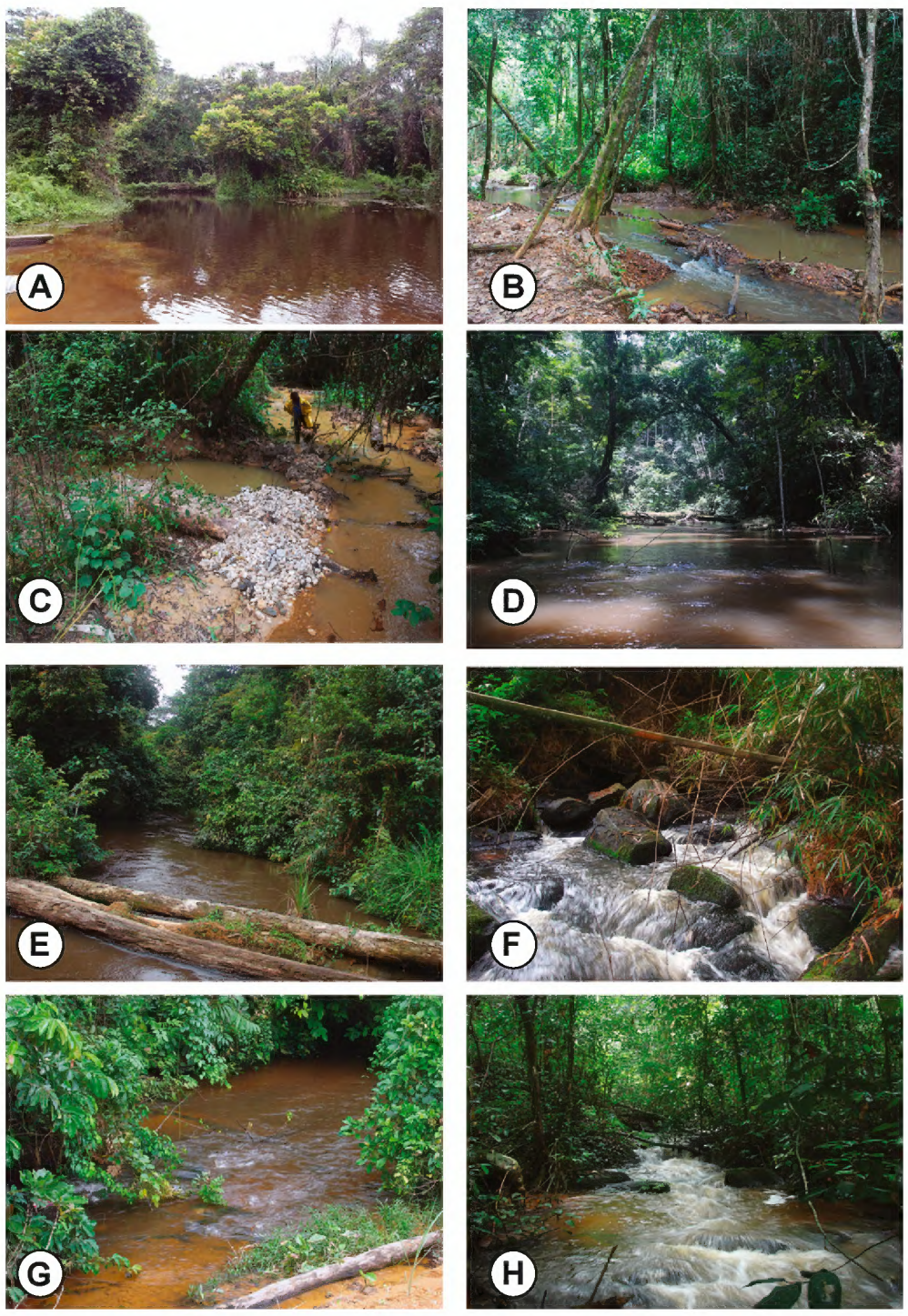

Figure 4. Sampling sites: A) Leala River; B) Mayoko Creek 1; C) Mayoko Creek 2; D) Mandoro River; E) Lefou River; F) Leweme Creek; G) Dzoussounou Creek; H) Lebayi Creek.

Figure 5. Sampling sites and fishing techniques: A) Djoulou River: B) Electrofishing, C) Use of scoop net, D) hook and line fishing E) Fyke net; F) local barrage traps.

5C), hook and line (Figure 5D), fyke nets (Figure 5E), and locally made barrage traps (Figure 5F). Interestingly there is no well-developed fishing culture among the peoples of this part of the Republic of Congo who instead have relied for millennia on the capture of bush meat as their major protein source. While women and children do fish on a small scale, mostly with hook and line (Figure 5D), and occasionally with barrage traps, during the present surveys the only river where any evidence of sustained artisanal fishing was found was in the Djoulou River (site 17, Figure 5A), where two fishing pirogues were observed. Taxonomic nomenclature used herein follows Brooks *et al*. (2011), which is based primarily on Eschmeyer (2010) but with a few modifications. All fishes were collected and exported with permission of the Congolese Ministère du Développement Durable et de l'Economie Forestière, Direction de l'Economie Forestière (Permit# 178465 and Permit# 1125526, both on file at AMNH).

Results and Discussion

A total of 1250 individuals belonging to 102 species, distributed in 22 families and nine orders are represented in Table 2, with their distribution among sites indicated in columns 1-17. Most likely in reflection of the paucity of previous sampling in this region, most of the species captured in the present study represent new distributional records, many for the entire country, but for most their presence is not unanticipated given recorded occurrences in adjacent regions (Stiassny *et al*. 2007; Brooks *et al*. 2011). A few taxa however, do represent significant range extensions into the region and among these are the cyprinids, *Barbus chiumbeensis* Pellegrin, 1936 (Figure 6C) and *Barbus aloyi* Roman, 1971 (Figure 7G), the amphiliid *Amphilius longirostris* (Boulenger, 1901), the claroteid *Parauchenoglanis pantherinus* (Pellegrin, 1929), and a mastacembelid tentatively identified here as *Mastacembelus sexdecimspinus* (Roberts and Travers, 1986). Noteworthy also, is the occurrence at all sampled sites of numerous species of "small barb", currently placed in the taxonomically problematical cyprinid genus *Barbus* (Berrebi *et al*. 1997; De Weirdt and Teugels 2007). In total 17 small barb species are now recorded from the region (Figures 6 and 7) a notably high tally for the area. In contrast, and despite the presence of seemingly suitable habitat, very few nothobranchiid killifishes were collected (Table 2), an unexpected paucity given the predominance of these fishes in other forested regions of the lower Guinean ichthyofaunal province (Stiassny *et al*. 2007). Equally noteworthy is the discovery of 11 taxa that appear to represent undescribed species (Table 2). In addition to two undescribed *Barbus* (Fig. 6A,B), nine other taxa are unassignable to currently known species (Table 2, Figures 8 and 9). Such a high number of undescribed species serves to underscore the importance of ongoing efforts to fully document the region's ichthyofauna prior to the realization of major infrastructure projects that will undoubtedly impact aquatic habitats.

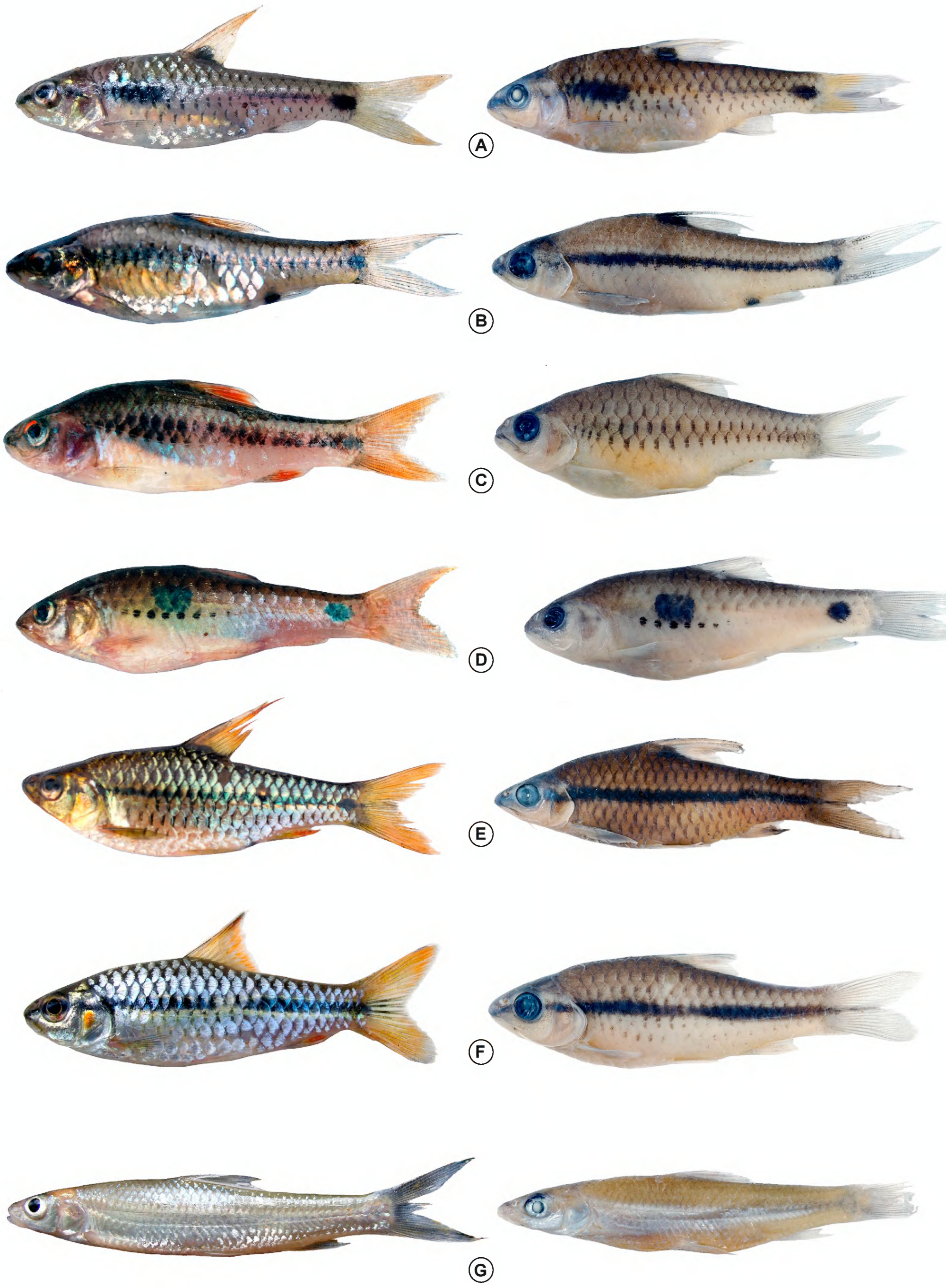

Figure 6. *Barbus* species of the region: A) *Barbus* sp.1, left: immediately *post mortem*, right: preserved; B) *Barbus* sp. 2, left: immediately *post mortem*, right: preserved; C) *Barbus chiumbeensis*, left: immediately *post mortem*, right: preserved; D) *Barbus camptacanthus*, left: immediately *post mortem*, right: preserved; E) *Barbus prionacanthus*, left: immediately *post mortem*, right: preserved; F) *Barbus rubrostigma*, left: immediately *post mortem*, right: preserved.

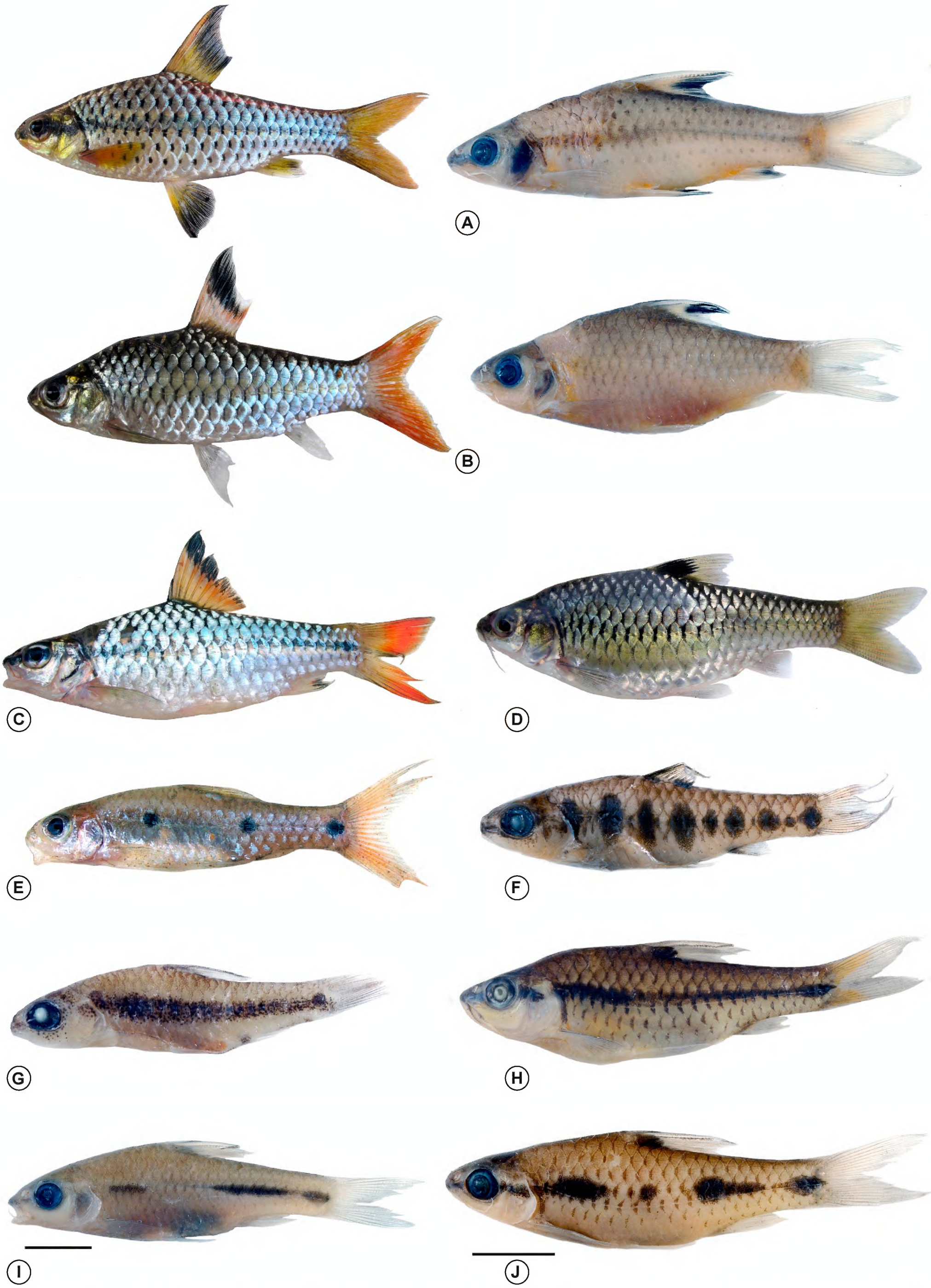

Figure 7. *Barbus* species of the region, continued: A) *Barbus diamouanganai*, left: immediately *post mortem*, right: preserved; B) *Barbus guirali*, left: immediately *post mortem*, right: preserved; C) *Barbus holotaenia*, immediately *post mortem*; D) *Barbus brichardi*, immediately *post mortem*; E) *Barbus trispilomimus*, immediately *post mortem*; F) *Barbus jae*, preserved; G) *Barbus aloyi*, preserved; H) *Barbus martorelli*, preserved; I) *Barbus catenarius*, preserved; J) *Barbus kuiluensis*, preserved.

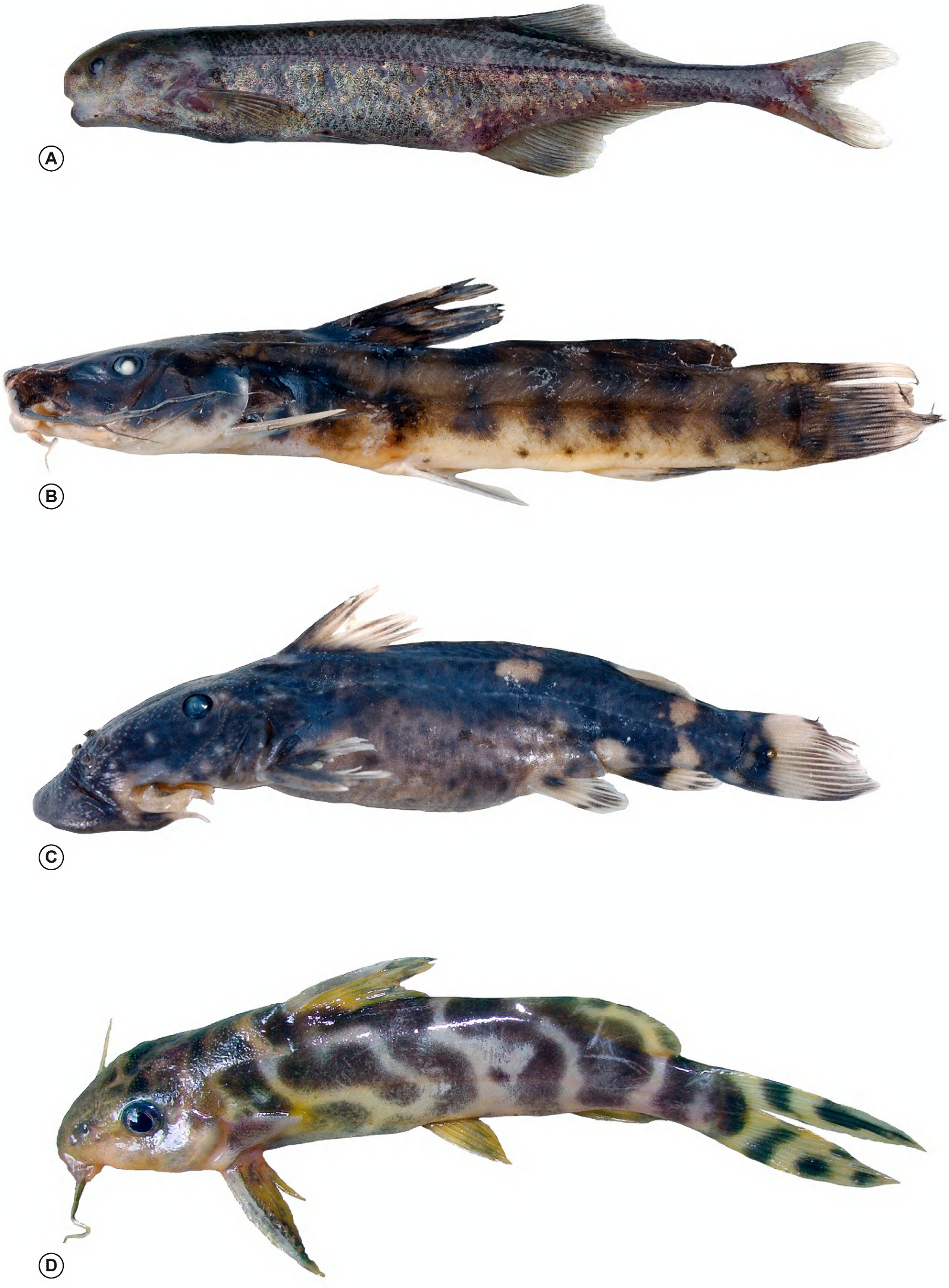

Figure 8. Undescribed species of the region: A) *Paramormyrops* sp. immediately *post mortem*; B) *Parauchenoglanis* sp. preserved; C) *Atopodontus* sp. preserved; D) *Synodontis* sp. immediately *post mortem*.

FIGURE 9. Undescribed species of the region, continued: A) *Bathyaethiops* sp. immediately *post mortem*; B) *Micralestes* sp. preserved; C) *Rhabdalestes* sp. immediately *post mortem*; *Leptocypris* sp. preserved; *Aphyosemion* sp. in life.

Table 2. List of species collected at sites 1-17 in the Kouilou-Niari, Upper Louesse, and Upper Ogowe River basins.

	AMNH Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
POLYPTERIFORMES																		
Polypteridae (1)																		
Polypterus retropinnis Vaillant, 1899	AMNH 253874, 256452	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
CLUPEIFORMES																		
Clupeidae (3)																		
Odaxothrissa ansorgii Boulenger, 1910	AMNH 253944, 253921	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Pellonula leonensis Boulenger, 1916	AMNH 253933	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Pellonula vorax Günther, 1868	AMNH 253885, 253922	X	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
OSTEOGLOSSIFORMES																		
Arapaimidae (1)																		
Heterotis niloticus (Cuvier, 1829), introduced to region	specimen not retained	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mormyridae (5)																		
Marcusenius moorii (Günther, 1867)	AMNH 256451	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-
Paramormyrops kingsleyae (Günther, 1896)	AMNH 253990	-	-	-	-	-	-	X	X	X	X	X	X	-	-	X	-	-
Paramormyrops sp.	AMNH 256449	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-
Petrocephalus simus Sauvage, 1879	AMNH 253919	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petrocephalus sullivani Lavoué, Hopkins and Kamdem Toham, 2004	AMNH 253920	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GONORYNCHIFORMES																		
Kneridae (1)																		
Parakneria abbreviata (Pellegrin, 1931)	AMNH 253983, 253961	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	X	-
CHARACIFORMES																		
Hepsetidae (1)																		
Hepsetus odoe (Bloch, 1794)	AMNH 253986, 253868	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X
Alestidae (17)																		
Bathyaethiops sp.	AMNH 254003	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Brachypetersius notospilus (Pellegrin, 1930)	AMNH 253967, 253859	-	-	-	-	X	X	-	-	-	-	-	-	X	-	X	X	-
Brycinus bartoni (Nichols and La Monte, 1953)	AMNH 253948, 253879	X	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Brycinus grandisquamis (Boulenger, 1899)	AMNH 253915, 253899	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Brycinus kingsleyae (Günther, 1896)	AMNH 253866, 253827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
Brycinus opisthotaenia (Boulenger, 1903)	AMNH 253877	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brycinus schoutedeni (Boulenger, 1912)	AMNH 231541	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
Brycinus taeniurus (Günther, 1867)	AMNH 254011	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryconaethiops microstoma Günther, 1873	AMNH 253945, 253913	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryconalestes longipinnis (Günther, 1864)	AMNH 253934, 253875	X	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	X
Bryconalestes tholloni (Pellegrin, 1901)	AMNH 253872, 253935	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	X
Micralestes sp.	AMNH 253906	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nannopetersius ansorgii (Boulenger, 1910)	AMNH 253914, 253869	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Nannopetersius lamberti Poll, 1967	AMNH 253898	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenacogrammus aurantiacus (Pellegrin, 1930)	AMNH 253996, 253867	X	-	-	-	X	-	-	-	-	-	-	-	X	-	X	X	X
Phenacogrammus urotaenia (Boulenger, 1909)	AMNH 253975, 253971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-
Rhabdalestes sp.	AMNH 253860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X

Table 2. *Continued.*

	AMNH Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Distichodontidae (6)																		
Distichodus hypostomatus Pellegrin, 1900	AMNH 253955, 253826	-	-	X	X	-	-	-	-	-	-	-	-	-	-	X	-	X
Nannocharax altus Pellegrin, 1930	AMNH 253991, 253960	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X	-	X
Nannocharax fasciatus Günther, 1867	AMNH 253992, 253854	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X	-	X
Nannocharax parvus Pellegrin, 1906	AMNH 253886, 253853	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X
Neolebias unifasciatus Steindachner, 1894	AMNH 253887	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Xenocharax spilurus Günther, 1867	AMNH 253973, 253876	X	-	X	X	-	-	-	-	-	-	-	-	-	-	-	X	-
CYPRINIFORMES																		
Cyprinidae (28)																		
*Barbus aloy*i (Roman, 1971)	AMNH 253888	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Barbus brichardi Poll and Lambert, 1959	AMNH 254008	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbus camptacanthus (Bleeker, 1863)	AMNH 256416, 256435	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-
Barbus catenarius Poll and Lambert, 1959	AMNH 253965	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
Barbus chiumbeensis Pellegrin, 1936	AMNH 256432, 256434	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-
Barbus diamouanganai Teugels and Mamonekene, 1992	AMNH 253916, 253883	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbus guirali Thominot, 1886	AMNH 253941, 254006	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbus holotaenia Boulenger, 1904	AMNH 253870, 253836	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X
Barbus jae Boulenger, 1903	AMNH 253857, 256447	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	-	X
Barbus kuiluensis Pellegrin, 1930	AMNH 253891	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Barbus martorelli Roman, 1971	AMNH 253864, 253864	-	-	-	-	-	-	X	X	X	X	-	-	X	X	X	X	X
Barbus prionacanthus Mahnert and Géry, 1982	AMNH 253856, 253970	-	-	-	X	-	X	X	X	X	X	-	-	X	X	X	X	X
Barbus rouxi Daget, 1961	AMNH 253828	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbus rubrostigma Poll and Lambert, 1964	AMNH 253905	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbus trispilomimus Boulenger, 1907	AMNH 254007	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbus sp. 1	AMNH 253890, 253994	-	-	-	-	X	-	X	X	X	X	X	X	-	-	X	-	X
Barbus sp. 2	AMNH 253891	-	-	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-
Garra ornata (Nichols and Griscom, 1917)	AMNH 253901	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Labeo annectens Boulenger, 1903	AMNH 253942	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X
Labeo lukulae Boulenger, 1902	AMNH 256425	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Labeobarbus compiniei (Sauvage, 1879)	AMNH 256415, 256421	-	-	-	-	-	-	X	-	-	-	-	X	-	-	-	-	-
Labeobarbus malacanthus (Pappenheim, 1911)	AMNH 253871, 253938	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	-	-
Labeobarbus progenys (Boulenger, 1903)	AMNH 253981, 256426	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	X	-
Labeobarbus roylii (Boulenger, 1912)	AMNH 253835	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-
Leptocypris sp.	AMNH 253894	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Opsaridium ubangiense (Pellegrin, 1901)	AMNH 253926, 253895	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Raiamas buchholzi (Peters, 1876)	AMNH 253873	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Raiamas christyi (Boulenger, 1920)	AMNH 253927, 253911	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
SILURIFORMES																		
Amphiliidae (7)																		
Amphilius dimonikensis Skelton, 2007	AMNH 256419, 256444	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
Amphilius longirostris (Boulenger, 1901)	AMNH 253980, 253845	-	-	-	-	-	-	-	-	-	-	X	-	-	X	-	X	-

Table 2. ***Continued.***

	AMNH Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Amphilius nigricaudatus Pellegrin, 1909	AMNH 253311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
Amphilius pulcher Pellegrin, 1929	AMNH 256433, 256438	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-
Doumea typica Sauvage, 1879	AMNH 253979, 253831	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	X	-
Phractura brevicauda Boulenger, 1911	AMNH 256448	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
Phractura longicauda Boulenger, 1903	AMNH 253958, 253989	-	-	-	-	-	X	X	X	X	X	X	-	-	-	X	-	X
Claroteidae (5)																		
Chrysichthys dageti Risch, 1992	AMNH 253923, 253924	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysichthys ogooensis (Pellegrin, 1900)	AMNH 254010	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parauchenoglanis balayi (Sauvage, 1879)	AMNH 256429, 256431	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-
Parauchenoglanis pantherinus (Pellegrin, 1929)	AMNH 253950, 256439	-	-	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-
Parauchenoglanis sp.	AMNH 256440	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
Clariidae (4)																		
Clarias camerunensis Lönnberg, 1895	AMNH 256417, 256422	-	-	-	-	-	-	-	X	-	X	X	X	-	-	-	-	-
Clarias gabonensis Günther, 1867	AMNH 256441, 256442	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-
Clarias jaensis Boulenger, 1909	AMNH 256437, 256450	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
Clarias pachynema Boulenger, 1903	AMNH 256428, 256430	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
Mochokidae (4)																		
Atopochilus savorgnani Sauvage, 1879	AMNH 253932	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Atopodontus sp.	AMNH 253846, 253312	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-
Chiloglanis cameronensis Boulenger, 1904	AMNH 253829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
Synodontis sp.	AMNH 253931	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Schilbeidae (2)																		
Pareutropius debauwi (Boulenger, 1900)	AMNH 253988, 253863	-	-	-	X	-	-	-	-	-	-	-	-	-	-	X	-	X
Schilbe multitaeniatus (Pellegrin, 1913)	AMNH 253930	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINODONTIFORMES																		
Nothobranchiidae (3)																		
Aphyosemion coeleste Huber and Radda, 1977	AMNH 256418, 256423	-	-	-	-	-	-	-	X	-	X	X	X	-	-	-	-	-
Aphyosemion sp.	AMNH 253977	-	-	-	-	-	-	-	X	-	X	-	-	-	-	X	X	-
Poeciliidae (1)																		
Hypsopanchax zebra (Pellegrin, 1929)	AMNH 253825, 253957	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X	-	X
PERCIFORMES																		
Anabantidae (1)																		
Microctenopoma nanum (Günther, 1896)	AMNH 253978, 256424	-	-	-	-	-	-	-	-	-	X	-	-	-	X	-	X	-
Channidae (2)																		
Parachanna obscura (Günther, 1861)	AMNH 256445	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
Cichlidae (6)																		
Chromidotilapia mamonekenei Lamboj, 1999	AMNH 254012, 253865	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X
Hemichromis elongatus (Guichenot, 1861)	AMNH 253972, 253862	-	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X
Oreochromis niloticus (Linnaeus, 1758), introduced to region	specimens not retained	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oreochromis schwebischi (Sauvage, 1884)	AMNH 253925, 256427	-	-	-	X	-	-	X	X	X	X	-	-	-	-	-	-	-
Tilapia cabrae (Boulenger, 1899)	AMNH 253928, 253882	X	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-

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Table 2. ***Continued.***

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
AMNH Number																	
AMNH 253884	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AMNH 253951, 253903	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
AMNH 256436, 256443	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-
AMNH 253902	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AMNH 253880	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AMNH 254009	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tilapia tholloni (Sauvage, 1884)																	
Mastacembelidae (3)																	
Mastacembelus marchei Sauvage, 1879																	
Mastacembelus niger Sauvage, 1879																	
Mastacembelus cf. sexdecimspinus (Roberts and Travers, 1986)																	
Mugilidae (1)																	
Liza falcipinnis (Valenciennes, 1836)																	
Gobiidae (1)																	
Awaous lateristriga (Duméril, 1861)																	